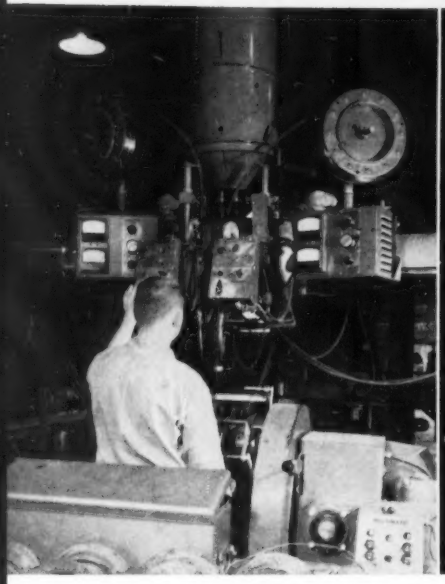
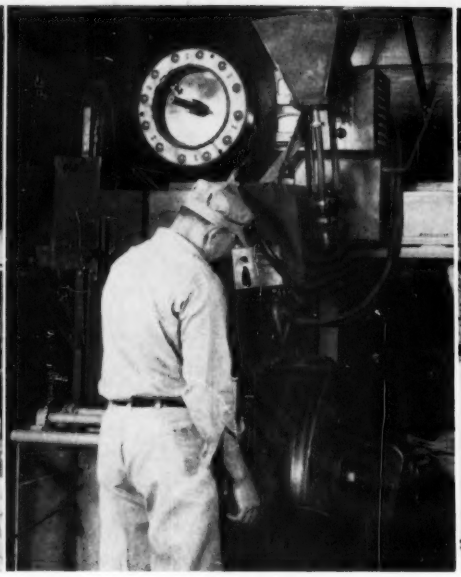
COAL MINING

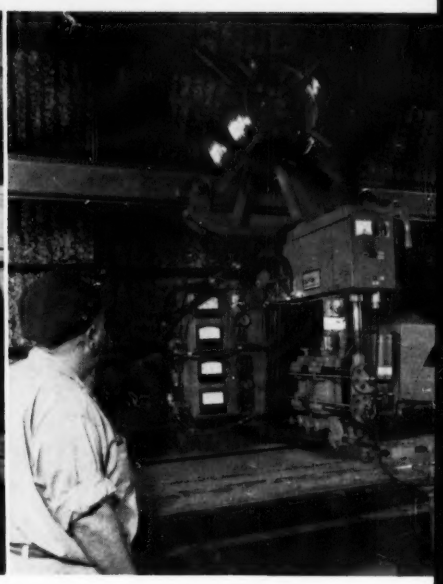
December, 1959

Volume 36, No. 12

BECKWITH TRACTOR UNDERCARRIAGE REBUILDING WILL SAVE YOU MONEY!







ROLLERS IDLERS TRACKS

Add thousands of hours of life to your Caterpillar® track-type tractor running gear . . . track rails, rollers, idlers and sprockets . . . through Beckwith Machinery Company's rebuilding service. New rebuilding equipment of the latest submerged arc-welding type such as the Multimatic and L & B machines shown above in our shops can effect substantial savings for you on maintenance and new parts.

Under our "Fair Price" Roller Exchange Plan you pay only for the cost of bringing your trade-in roller up to factory new-parts standards, based on the class of wear of your old roller. You pay a fair price instead of a flat price. The "Idler Rebuild Offer" gives you free information to determine whether idlers are worn within limits so that they can be welded to effect savings. In Beckwith's "Rail Reviver Plan" we build up your track links to original specifications by submerged arc welding of both rails at once.

Check with any Beckwith field representative or see any of our Parts or Service Managers for complete details on this cost-saving service.

HERE'S WHAT TYPICAL OWNERS REPORT:

"I'm having Beckwith rebuild my Cat D9 rollers for the second time because the first welding job put them in such good condition that they gave me comparable service to the production line originals."

Wilmer Kimmel, Kimmel Coal Company of Arona, Pa.

"We are entirely satisfied with the appearance and performance of the undercarriage rebuilt for our D9 tractor by Beckwith. We are especially pleased with the substantial savings."

William Edmunds, Edmunds Contracting Company of Frenchville, Pa.

"Frankly, we have been hesitant to rebuild rollers, rails or idlers but after watching the performance of Beckwith-rebuilt items in the field we feel the quality of workmanship makes it worthwhile to have our Cat D9 undercarriage rebuilt by your specialists."

Ray Turner, E. N. Turner & Sons of Harrisville, Pa.

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CATERPILLAR'S

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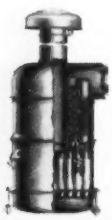
New power! New design! New features! Plus a new drive option—Cat power shift transmission! The result: higher production on any application!

Now the "King of the Crawlers" is better than ever with new pace-setting capacity for higher, faster, lower-cost production on *any* big tractor application!

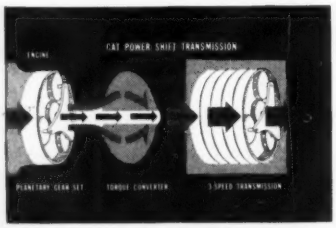
The biggest "new look" in the giant D9 Series E is the undercarriage. It's more massive . . . more rugged than ever. It'll add hours of life to running gear on even the toughest jobs. *Every* track component is new in design, highlighted by a big, new link—its pitch is increased 1¼" to 10¼"! And a new Caterpillar-developed steel alloy strengthens links, shoes, rollers *up to 40%!*

That's not all: the new D9 packs more power—335 HP. Its new equalizer bar gives greater stability on any terrain for greater operator confidence and production. A wider seat with a new spring-loaded adjustment mechanism makes the operator more comfortable, more efficient. No detail has been overlooked to make the new D9 handle heavier loads faster—and at lower operating and maintenance costs than ever.

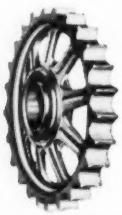
And that's not all. Now, along with direct drive and torque converter, you have your choice of the new Cat



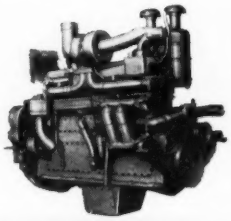
Dry-type air cleaner. Removes at least 99.8% of all dirt from intake air during every service hour. Can be serviced in 5 minutes. Reduces maintenance time and cost.



Exclusive feature. A planetary gear set splits the power from the engine. Part goes directly to the 3-speed transmission, the rest goes through a torque converter to transmission.



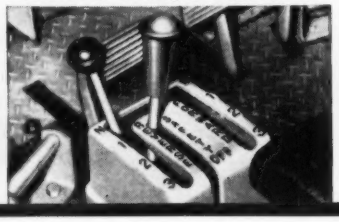
New sprocket. Sprocket is strengthened by new design with increased tooth thickness. Hunting tooth action provides slower wear rate.



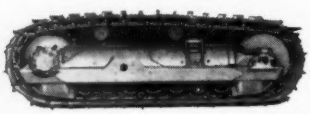
New 335 HP. More powerful than ever, the D9's Turbocharged Engine has the capacity to handle bigger loads faster, with dependability, economy.

New Turbocharger. New, compact turbocharger packs more air into the engine. Open impeller wheel (shown below) helps prevent dirt build-up.

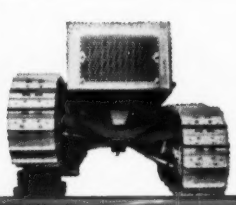
New power shift transmission. Optional on the D9. With this development you can shift **on-the-go** under **full** load with **one** lever and **no** clutching in a split second!



New, bigger, more rugged undercarriage. Major improvements in all track components add hundreds of hours of life to running gear—hours that mean more time on the job.



New equalizer bar. Greater stability. The rocking action of the bar shifts more weight to the up-hill track.



new CAT D9 E Tractor

power shift transmission. This revolutionary transmission, tested under the most rugged conditions, combines for the *first* time the positive feel of direct drive with the flexibility and anti-stall features of torque converter. With one control lever and no clutching, it reverses direction . . . changes speed . . . smoothly . . . under full load . . . in a split second!

Many of the new features, along with some familiar retained features, are shown here. Look them over. They'll give you an idea *why* the new D9 can mean higher production and more profits for you.

For complete facts, see your Beckwith representative or call us and we'll rush you more information!

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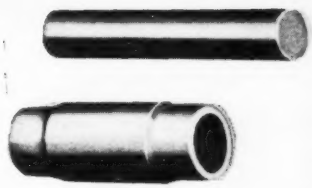
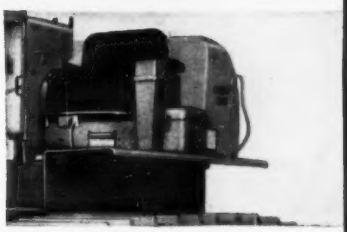


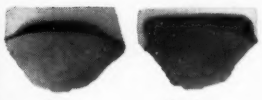
Larger pins and bushings. Diameters are ¼" larger. Increased size reduces deflection and provides better contact along the length of the wear surfaces.



New seat adjustment. New spring-loaded adjustment mechanism provides more positive cushion and back rest positioning. Wider seat for more comfort.

New foot decelerator. Provides easier machine positioning. Allows deceleration without taking hands from controls (optional on direct drive, standard on others).

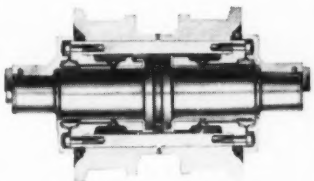
Bigger, heavier track links. Strength has been added in stress areas. Pitch increase from 9" to 10¼" strengthens all track components.



New track link — Previous track link

Light area at top indicates depth of hardening

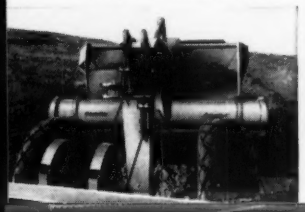
New deep hardening steel. Caterpillar-developed steel alloy (plus more steel in stress areas) gives up to 40% longer life to track shoes, links and rollers.

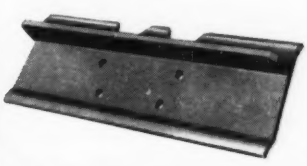


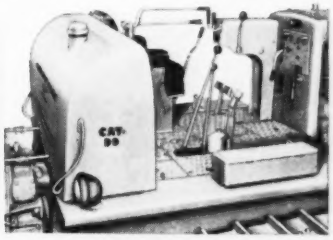
Lifetime lubricated track rollers. Lifetime lubrication eliminates servicing problems. Oil is retained by dirt-proof, floating-ring seals.

Better visibility. Redesigned fuel tank gives better visibility to the rear and tapered hood offers unexcelled forward vision.

Stronger track shoes. New alloy permits deeper hardening in wear areas. Grouser height is increased ⅜" for better penetration and prolonged service life.







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Uncovering **1,000 - 800 - 500 tons** a day—
removing **50 - 60 - 80 ft.** of overburden

You get MORE YARDAGE AT LOWER COST when you put a Page uncovering your coal. See actual records of Page Walkers stripping at a profit, where smaller machines lost money (we would like to send you some.)

A top profit-maker is the Page Model 726 with 150 ft. boom and 12 cu. yd. bucket. You can get Pages up to 22 cu. yd. capacity.

They have the SPEED. Page Walkers swing unusually fast -- have a correspondingly fast hoist line — quicker cycles and more yardage.

And you get extreme low-cost operation with Page's V-type Diesel engine, designed for dragline work with bigger bearings and pistons, slow speed. (Furnished with Electric Power if you want it.)

GET AN ESTIMATE OF YOUR OWN STRIPPING COST with a Page. We'll be glad to figure it from accurate records of what has been done. Write, wire or phone —

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SINGLE DECK WALKING DRAGLINES

COAL MINING

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Contents

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"ONE OF THE MOST IMPORTANT QUALIFICATIONS for Jeffrey sales engineers," says W. G. Montgomery, District Manager at Bluefield, West Virginia, "is a keen power of observation. Thus he builds up experience that is invaluable to his customers." Montgomery is shown at Omar Mining Company, Omar, West Virginia, where Jeffrey recently system-engineered all cutting and loading equipment for Mine 15. The first new unit in service (cutter, loader and 2 shuttle cars per unit) has delivered 677 tons of clean coal per shift. Drift mine height is 39" to 56".

Jeffrey Service starts with system engineering

When you discuss your mining machinery requirements with Jeffrey, you will work with an experienced sales engineer.

He not only knows the ability of his equipment but knows coal mining, too. Years of experience with all kinds of mining conditions have made him adaptable . . . given him the know-how to help you achieve low cost production.

Thus the Jeffrey sales engineer studies your mining problem thoroughly. For example, a recent proposal for the mine of a major coal company included a complete study of the seam conditions and mining projection—indicating production, personnel requirements, predicted costs and equipment to do the job. This kind of system engineering pays off for the purchaser.

Give Jeffrey's complete service an opportunity to work for you. *You'll find it pays off in predictable results.* The Jeffrey Manufacturing Company, 974 North Fourth Street, Columbus 16, Ohio.

OFFICES: Birmingham, Alabama; Bluefield, West Virginia; Denver, Colorado; Evansville, Indiana; Harlan, Kentucky; Iron Mountain, Michigan; Los Angeles, California; Pittsburgh, Pennsylvania; Salt Lake City, Utah.

JEFFREY TEAM ON THE JOB—System engineering gets follow through from an experienced team as new equipment goes into service. Shown are Montgomery; Sales Engineer P. M. Campbell; Application Engineer D. R. Ellis; Serviceman W. C. Mayo; Chief Demonstrator R. W. Ramer; Demonstrator L. Damron.

JEFFREY

MINING • CONVEYING • PROCESSING EQUIPMENT...TRANSMISSION MACHINERY...CONTRACT MANUFACTURING

Do You Know?

● More than 500 lives have been saved in Great Britain by an artificial kidney machine developed in the U. S. Such a machine, little more than a length of tubing, receives blood from the body, purifies it, regulates the balance of salts, and pumps the blood back into the veins. Of 28 pregnant women with acute kidney failure who were assisted by the machine, 26 survived, the British Information Services reported. Also, of 37 patients whose kidneys failed due to trauma or shock, as in a car accident, 15 were saved.

* * *

● Next year's class of graduating engineers will run about 600 below the expected 1959 total. The Engineering and Scientific Manpower Commissions estimate a 1960 graduating class of 37,400 engineers. The Commissions note that the number of drop-outs has increased. The 1959 class began in 1955 with 72,825 freshmen, but only an estimated 38,000 graduated. Trends in conferred degrees show electrical engineering (now 27% of the whole) gaining steadily, civil engineering (15%) dropping, while mechanical (25%), chemical (10%), and industrial (5%) are remaining constant.

* * *

● Russia reports development of a mining method that can sink a 10-foot shaft at the rate of about three feet every four minutes.

In the new method, liquid explosives are piped through an opening in a big drill bit. A detonator is added to produce a rock shattering explosion.

As reported in the Central Intellegence Agency's "Scientific Information Report" circulated by our Department of Commerce, the explosive mining method has been under development since 1957 by Russia's Central Scientific Research and Planning-Design Institute for Underground and Mine Building.

Experiments showed the equipment can sink a 10-foot hole about three feet every four minutes, or a 24-foot hole about three feet every 25 minutes. This is ten times faster than by conventional methods, reports A. Osipov in a technical journal published in Moscow.

Jim Hill, assistant chief mining engineer at the U. S. Bureau of Mines, said he knows of no similar technique under development in the United States.

In the U. S., conventional drills are used to punch holes in rock. These holes are packed with dynamite and shot. Loose rock is then loaded into buckets mechanically and hauled out of the hole, he said.

Unless the Russian method proved to be inexpensive, it is unlikely that it would find wide acceptance in American mining circles. This is because individual companies sink their own shafts and must bear the cost of the shaft-sinking equipment. In South Africa, and presumably Russia, where one agency may sink shafts for many projects; expensive equipment could be economically justified, he said.

Mr. Hill said he doubted that Russia is actually now applying the explosive mining method. He based his opinion on recent information concerning a dispute between South Africa and Russia over who had sunk a shaft the faster. South Africa claimed 863 feet a month, and Russia claimed 1,000 feet a month. Neither figure would indicate that radically new techniques were being used.

HERE AND THERE IN THE COAL INDUSTRY

● Frank F. Kolbe, has been elected chairman of the board of United Electric Coal Companies, Chicago. Replacing Kolbe as president of the firm is John M. Morris.

* * *

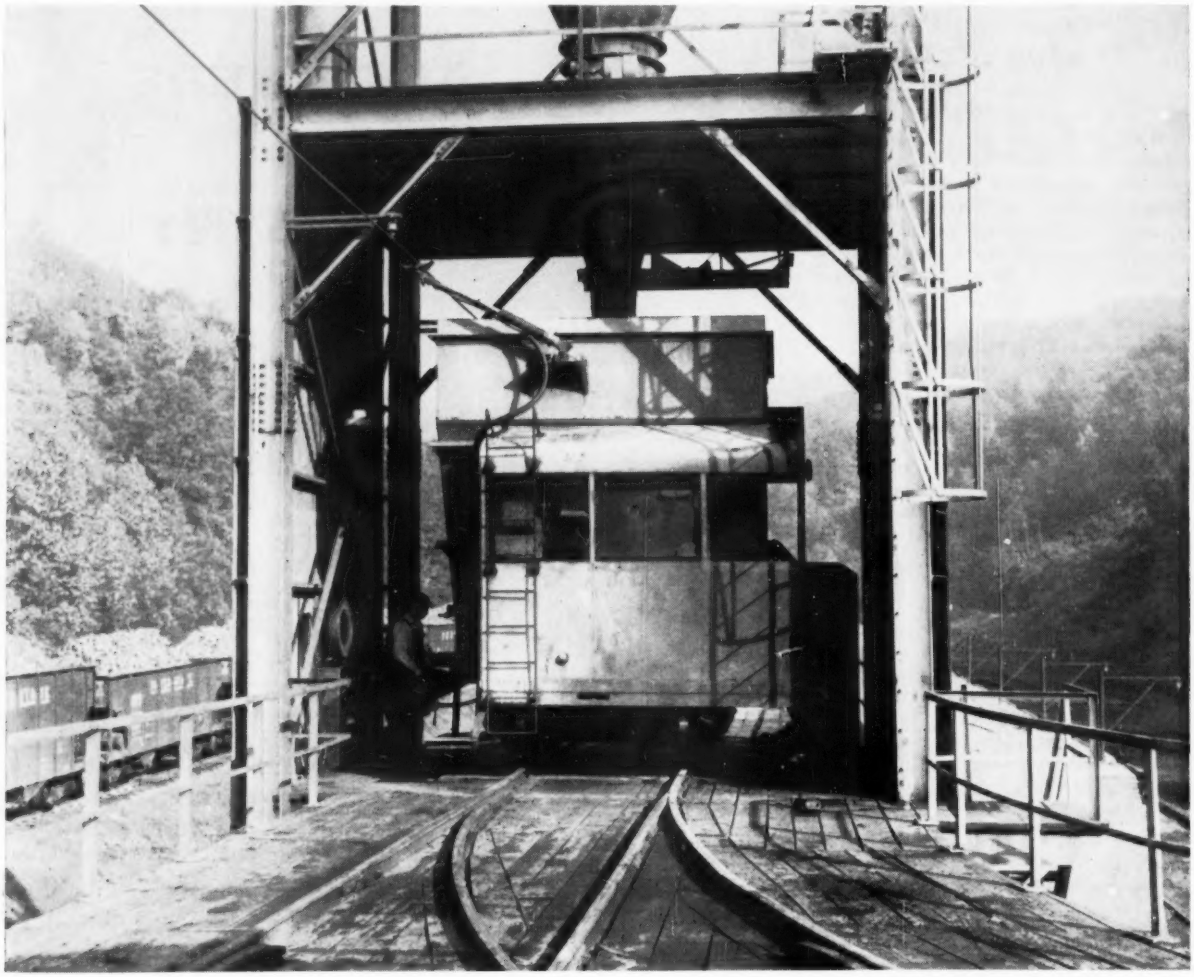
● Harlan County Coal Operators reelected Cloyd McDowell president, Mrs. Sherman Howard, secretary at their 43rd annual meeting. Traffic manager Roy Carson reported on traffic and rate structures and proposed changes to be filed for the Association in the coming year. Rufus Bailey, safety director, reported a sharp reduction in accidents in the Harlan district. Speakers at a banquet were Tom Pickett, NCA executive vice president, and James B. Benson, representing Joseph E. Moody, president of southern Coal Producers' Association. Special guests were Harlan Mayor Roscoe Petrie; Joseph J. Ardigo, executive secretary of Operators Association of the Williamson Field; L. C. Goering, coal traffic manager, L & N Railroad Co.; and John Jex, NCA staff.

* * *

● The Northern West Virginia Coal Association elected the following officers: James F. Trotter, president; George R. Higinbotham, Stephen Canonico, W. J. B. Mayo, vice presidents; and T. E. Johnson, secretary-treasurer. The officers were also elected directors, along with C. R. Nailler, Frank R. Amos, George Judy, H. John Harper, Jay C. Jamison, Jr., R. J. Craig, Frank Williams, Sr., Brock Showalter, E. E. Criswell, Albert Phillips, P. E. McKinney, J. J. B. Stoetzer, Paul Hornor, W. E. Edmonds, M. A. Williams, G. D. Curtin, and A. B. Ord.

* * *

● Hazard Coal Operators Association reelected Finley H. Davis, Lexington, Ky., as its president at its 44th annual membership meeting Monday in Hazard, Ky. Mr. Davis is also president of Midland Mining Co. Other officers elected were C. E. Fannin, Portsmouth, Ohio, vice president, and Fred B. Bullard, executive secretary and treasurer. Mr. Fannin is general manager of Carrs Fork Coal Co. The following directors were elected in addition to Messrs. Davis and Fannin: D. S. Blount, Roanoke, Va., Cavalier Coal Co.; Bruce L. Davis, Lexington, Ky., Old King Mining Co.; L. A. Hopper, Hazard, Greenridge Coals, Inc.; R. H. Kelly, Hazard, Fourseam Coal Corp.; Harry LaViers, Sr., Paintsville, Ky. South-East Coal Co.; F. M. Medaris, Harveyton, Ky. Harvey Coal Co.; R. P. Price, Lexington, Ky., K & F Coal Co.; Joseph M. Richards, Knoxville, Tenn., Blue Diamond Coal Co.; William B. Sturgill, Hazard, Kenmont Coals, Inc.; C. E. Walker, Tazewell, Va., Jewell Ridge Coal Corp.



A 14-ton larry, built by Connellsville Manufacturing and Mine Supply Company, is shown being loaded at a weigh-scale for charging coke ovens at Big Stone Gap, Va. Two larrys, charging 180 ovens, transfer their loads by horizontal drag conveyors.

New Coke Oven Equipment At Stonega Coal & Coke Co.

● Special handling equipment capable of charging and pushing (unloading) coke ovens at the rate of one every 3.6 minutes of the working day has been placed in operation at a new coking plant near Big Stone Gap, Va. by the Connellsville Manufacturing and Mine Supply Company.

The Connellsville-built equipment is servicing 180 coke ovens of the Stonega Coke and Coal Company at its pine Branch Colliery, about three miles south of the Virginia-Kentucky state line.

Completely mechanized, the ovens are designed to produce some 650 tons very low ash, low sulphur metallurgical coke daily.

The Connellsville, Pa. firm furnished two charging larrys, a leveling machine, an oven pusher, and a mobile conveyor to carry the finished product from ovens to railroad cars.

With the ovens operating at a minimum rate of 90 per 48-72-96 hour coking cycle, this high-speed handling of material is rated by Stonega officials as among the most efficient in the industry.

The Stonega plant consists of three 60-unit batteries of Mitchell-type rectangular ovens, each unit having a charge capacity of 12 tons, and producing more than 7 tons of coke per charge. Each of the units is 32-ft. long, widening from 4-ft., 10-in. at the loading side to 5-ft., 2-in. at the discharge side.

Since 90 ovens must be pushed in one day, or at a rate of one every 3.6 minutes, it was necessary for Connellsville Manufacturing to design and build the material handl-

ing equipment for this cycle. One of the greatest problems was to assure that coal for the ovens could be handled for charging in this allotted time.

The 14-ton larrys operate on a standard guage track (4-ft., 8½-in.) on top of the ovens and at a grade of 1.5%. Traction speed is 6 mph against grade.

When positioned over ovens ready for charging, the larrys transfer their 12-ton loads by means of 36-in. horizontal drag conveyors operating at a speed of 83 fpm. Traction power is supplied by a 51 hp, 250 v DC motor, and conveyor power is provided by a 10 hp motor.

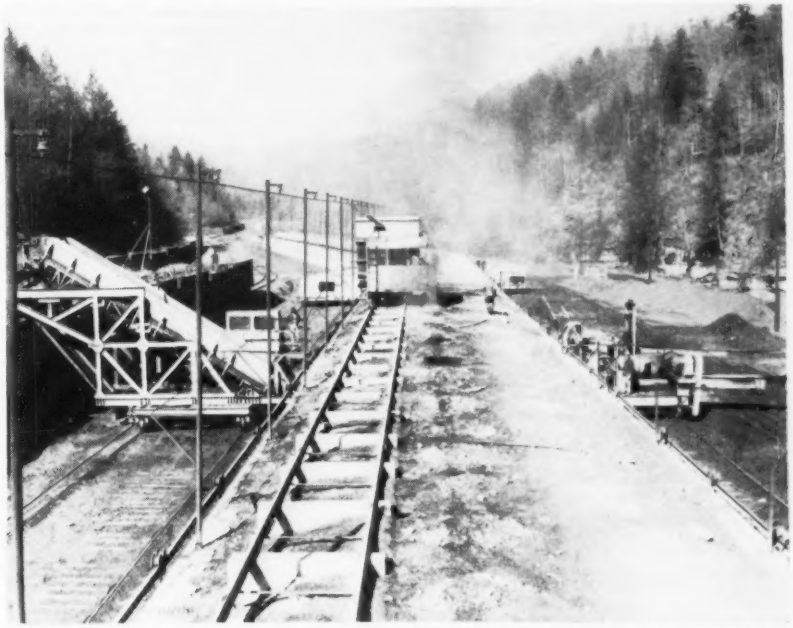
The coal leveling machine and the coke pusher are operated on 10-ft. gauge tracks at ground level and at the same grade as the larrys atop the ovens. Both have a top traction speed of 100 fpm against grade.

The leveling machine is equipped with a 19 hp motor for traction and driving ram, and a 3 hp motor for elevating or lowering of the ram. The pusher is equipped with a 33 hp motor which provides power for traction and ram.
traction and ram.

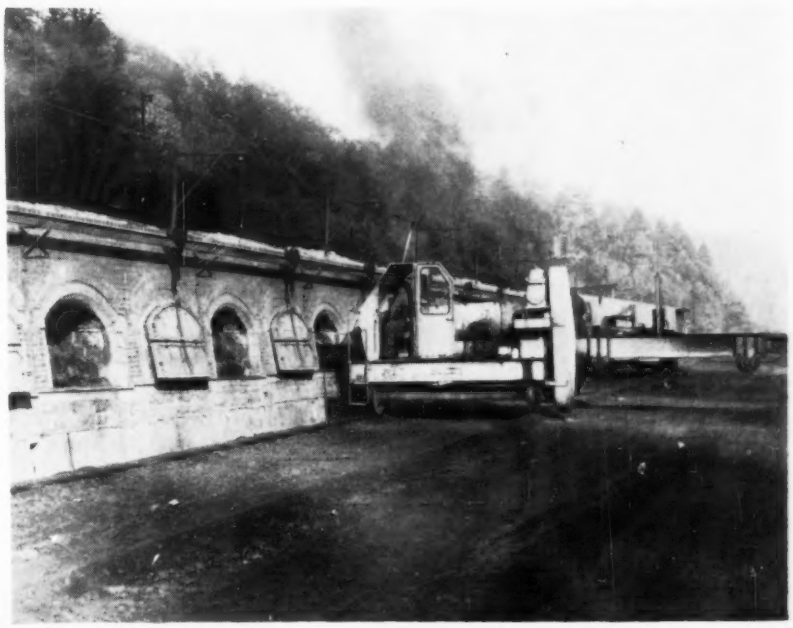
The leveler ram, with a controllable speed of 110 fpm at full load, is 41-ft., 6-in. long with a 32-ft., 5-in. stroke. It is mounted on cast iron, bronze-bushed rollers and is driven by a hardened steel pinion dog-clutched to a central gear reducer. Pinion speed is approximately 35 rpm.

The ram box is trunnion-mounted at the oven side, with hydraulic piston and counterweight suspension at the rear. Allowance is made at the trunnion to adjust the elevation by means of independently powered hydraulic cylinders of 3¼ in. bore, 30 in. stroke. The hydraulic power is furnished by a 1000 psi pump @ 4.35 gpm with a 30-gal. reservoir.

The pusher ram is 43-ft. long with a stroke of 33-ft., 10-in. It has a controllable speed from 20 fpm in low range to 40 fpm in high range. Rollers are gray iron, bronze-bushed, with a drive similar to that of the leveling machine ram. Pinion speed is approximately 6 rpm. As the same motor provides traction and pushing power, clutches for both operations are interconnected to prevent dual engagement. The ram on this piece of equipment was mounted to permit its alignment with the ovens when assembled at the job site.



Special handling equipment for charging and pushing (unloading) coke ovens at the rate of one every 3.6 minutes has been designed and built by the Connellsville Manufacturing and Mine Supply Company. The equipment, consisting of two larrys, a charge leveling machine, an oven pusher and a mobile conveyor have been installed at a new 18-coke oven installation of the Stonega Coke and Coal Company near Big Stone Gap, Va.



A coke leveling machine and a coke pusher are shown at work on ovens of the Stonega Coke and Coal Company. Both pieces of Connellsville-built equipment have rams more than 40-feet long to service the Mitchell-type ovens. The installation is designed to produce 650 tons of coke daily.

The coke conveying machine, with a 100 fpm maximum speed against grade, travels on a 14-ft. gauge track. The conveyor itself has a length of 45-ft. from center to center of shafts and can be set by hand screws at a slope of 27½ to 32½ degrees from horizontal to load the cars on tracks some 4-ft. higher than those on which the conveyor travels.

The conveyor, described as carbon steel pans riveted to a 6-in. pitch chain, with a 6-ft., 4-in. width from center to center of chains, has a speed of 100 fpm. Conveyor is driven by a 45 H. P. 250 Volt D. C. mill motor. A 19 H. P. 250 Volt D. C. Series Wound Mill Motor supplies the traction drive.

A receiving hopper, hinged to rest on the oven hearth plate, is push-button operated and is powered by a 2 hp motor fitted with a helical gear reducer.

A 1-in. mesh vibrating screen at the discharge end of the conveyor, measuring 5-ft. by 5-ft., powered by a 3 hp DC motor with mutliple V-belt drive to shaft, may be adjusted from 15 to 30 degrees from horizontal for loading the cars.

Slack coal used as the charge for the Stonega ovens is obtained from a modern coal preparation plant processing some 2300 tons of coal per day from the Pine Branch mine.

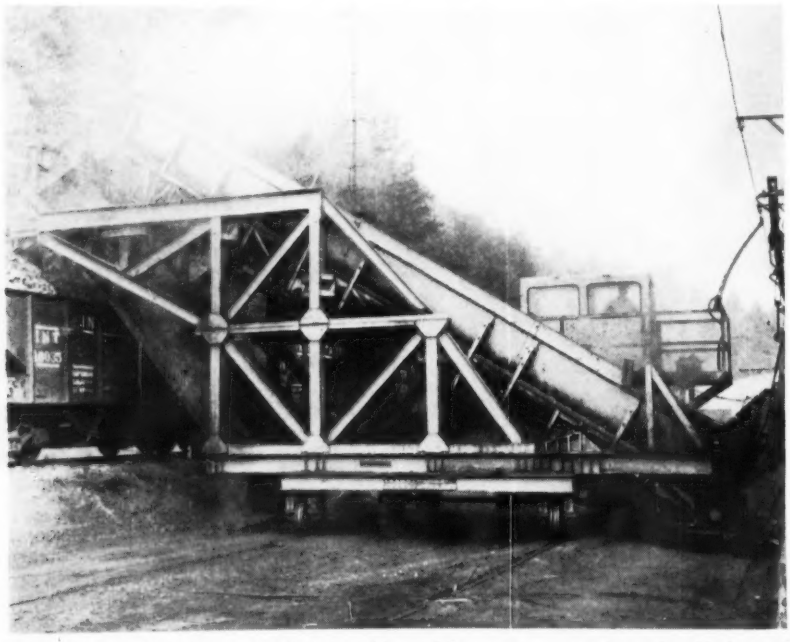
Transported from mine to cleaning plant by a ¼ mile conveyor belt, the coal is wet-washed, using heavy media type separation for the plus ¼-in. material, and Deister tables for the ¼ x 0, with Cyclones and Eimco filter employed to clean further and collect the finer mesh particles.

The fine coal from the tables forms the feed product, 2.75 to 3.25% ash, with a surface moisture of 8.5%. This is carried by conveyor belt to a storage pike which has a capacity of approximately 9,000 tons.

Spread over the storage area by bullgrader, the coal is pushed by the same equipment into 10-ft. x 10-ft. hopper. A vibrating feeder transfers the material from the hopper to a 30-inch belt feeding a 24-ft. diameter, 15-ton cone-type surge bin.

Discharge from the bin to the larrys below is through a 36-in. diameter opening at the rate of 8.8 tons per minute. Flow from the feeding cone is controlled by a horizontal sliding gate actuated by solenoid valves in the hydraulic lines.

A 50,000-lb. capacity track scale weighs the oven charge deposited in the larrys. The desired weight of the charge is set on the scale and the larry operator starts a hydraulic pump for operation of the sliding gate on the surge bin. When the desired amount of coal is received by the larry a mercury switch actuates a solenoid valve to close the feed gate, and the larrys then move down the track for charging of the ovens.



Operating at the rate of 100-ft./min. this mobile conveyor carries coke discharged from the ovens by the pusher ram to waiting railroad cars at the Stonega coke oven installation. The conveyor has a length of 45-ft. and is constructed of carbon steel pans.

● Our new line of Davis VENTILATING FLOW INSTRUMENTS is intended chiefly for measuring air velocity in mine airways. Several models are available covering ranges from as low as 30/ft/min up to 6000 ft/min. The instrument is of extra high accuracy, handy to use light and precise. Several extension handles up to 5 ft. are available as extra accessories. The instruments come either in a solid leather case or in a sturdy and light aluminum case, depending on the model. Price from $95.00 to $205.00. Sole Distributor EPIC, Inc., 150 Nassau Street, New York 38, N. Y.

CATERPILLAR'S
PROGRESS REPORT
1959

NEVER before, in *one* year, has *one* manufacturer introduced such an impressive array of new heavy-duty earthmoving machines and major earthmoving developments as did Caterpillar in 1959.

And as your Caterpillar Dealer we have matched these developments with improved facilities—the best factory-trained personnel anywhere in the business—thorough knowledge of your requirements, jobs and bids—and modern financing arrangements to match your needs.

All of these new machines and developments—backed by our sales and service organization—have one common objective: to pay off with the fastest, lowest cost production the earthmoving field has ever seen! They help you compete successfully in the most competitive construction market in history.

On the following pages you'll see a year's history of development at Caterpillar unfold before your eyes. For all the facts on the complete line, make a date with us. Whatever your needs, we have the answer—both in our modern, heavy-duty equipment line-up and application "know-how."

What about 1960? Ours is a continuing, full-time program of progress. Look for many major equipment developments from us during the coming year. Keep your eye on Caterpillar in 1960!

Here they are– CATERPILLAR'S NEW

D9 Series E

Now the "King of the Crawlers" is better than ever with new capacity for higher, faster, lower-cost production on any big-tractor job. Here are some reasons why:

NEW UNDERCARRIAGE. Here's the "newest look" in this take-charge giant. Its undercarriage is more massive, more rugged than ever. And major improvements in all track components add hundreds of hours of life to running gear—hours that mean more time even on the toughest job.

STRONGER TRACK COMPONENTS. Bigger, heavier track links, shoes, pins and bushings give longer trouble-free service in roughest going. Increased link pitch from 9″ to 10¼″ means added size and strength in all track components. New deep hardening steel gives up to 40% longer life to shoes, links and rollers.

NEW 335 HP (flywheel)—268 HP (drawbar). More powerful than ever, the D9's Turbocharged Engine has the capacity to handle bigger loads faster, with even greater dependability and economy. A new, compact Turbocharger packs more air by weight into the engine and improves fuel-burning efficiency.

NEW EQUALIZER BAR. This important improvement in the D9 helps increase production, particularly on sidehill applications where the rocking action of the bar shifts more weight to the uphill track. Result: better tractor stability and increased operator confidence.

D8 Series H

Pacesetter in its tractor class, the new D8 Series H incorporates dramatic new engineering advances. Some are described here. For complete details, see your Caterpillar Dealer.

NEW POWER. The horsepower of the new D8 is up from 191 to 235 at the flywheel, from 155 to 185 at the drawbar. In addition, engine torque rise now is 20%, an increase of one-third. Over-all engine performance has been greatly improved by the addition of a Turbocharger.

NEW DIMENSIONS AND WEIGHT. The new D8 is heavier—it weighs 47,000 lb., over 2 tons more. It has 84″ track gauge, 5,505 square inches of track on the ground with standard 22″ track shoes. The new D8 has 19⅞″ ground clearance—50% more than ever before—and the most in its class.

NEW LIFETIME LUBRICATED ROLLERS AND IDLERS. Rollers and idlers are lubricated at the factory and will require no further lubrication until rebuilding. Special metal floating-ring seals keep lubricant in, dirt out, for lifetime lubrication. Proved by over 5 years of testing.

NEW DRY-TYPE AIR CLEANER. Most efficient air cleaner ever developed. Removes at least 99.8% of all dirt from intake air during *every* service hour. Can be serviced in five minutes. Cuts maintenance time by as much as 75%. Efficient at all engine speeds and operating conditions.

MACHINES AND DEVELOPMENTS IN '59!

CAT DW20 and DW21 SERIES G TRACTORS

Now 345 HP for faster cycles—plus new high-capacity LOWBOWL Scrapers for bigger loads!

New horsepower, new rimpull, new speeds, new scraper ratings and new stronger structures—that sums up the impressive list of improvements made in these big new Caterpillar rigs. Compared with the models replaced, the new 345 HP (max. output) four-wheel DW20 and two-wheel DW21 Series G Tractors deliver 12% higher rimpull. This increased rimpull provides up to 20% faster travel speeds under similar haul road conditions. Compared with previous models, the new LOWBOWL Scrapers (No. 456 and No. 470 Series B) have 8% greater capacity. Their new ratings: 19.5 cu. yd. struck; 27 cu. yd. heaped. Also, the new No. 482 Scraper for use with the DW20 has 24 cu. yd. struck capacity, 34 cu. yd. heaped.

To handle this increased HP and increased capacity, both tractors and scrapers have been improved in design and structure. The tractors, for example, have stronger final drive gears and improved transmission shifter forks. The scrapers have stronger bowls, draft frames and aprons. All these and other improvements result in better service life, less maintenance and cheaper dirt. Geared for today's highly competitive market, these high-capacity rigs meet your needs for moving more dirt at lower cost than ever!

CAT D7 SERIES D TRACTOR

Packed with more power and more features to deliver even more production at lower cost!

More productive ability and greater operating economy—that's the result of advances in the new D7 Series D to make it an even better investment than the efficient machine it replaced.

Here are some of the key features that put the new D7 way out front in its class. A new Turbocharged Caterpillar Diesel Engine develops 140 flywheel HP, 112 drawbar. Improved torque characteristics increase its lugging ability 80%. The D7 also features a new dry-type air cleaner, new lifetime lubricated rollers, new lubrication system for transmission, new stronger final drive gears and optional in-seat starting. With all these and other new advances, certain time-tested features have been retained. To mention one, there's the exclusive oil clutch, which delivers 2,000 hours of service without adjustment.

For day-in, day-out hard work, no other machine of comparable size can match the new D7 Series D. It is way out in front of all others in its class!

Here they are– CATERPILLAR'S NEW

POWER SHIFT TRANSMISSION

for D8 and D9 Tractors

On-the-go shifts under full load in a split second. Changes speed, reverses direction with finger-tip control lever—and no clutching!

This rugged new transmission, with an exclusive new design, provides production highs never before possible with a track-type tractor. Here's why: 1. It combines for the *first* time the flexibility and anti-stall features of torque converter with the operating snap of direct drive. And because of its direct drive characteristics, it is more efficient than other power shift designs. 2. With one control lever and no clutching, it reverses direction . . . changes speed . . . smoothly . . . under full load . . . in a fraction of a second.

Power shift control is mounted to the operator's left. One selector lever (black knob) eliminates gearshift, forward-reverse and flywheel clutch levers. The safety lever (red knob) prevents accidental engagement. The selector lever moves in a "U" path to various positions. Shifting is so easy the operator just naturally gets more work out of the tractor even on the toughest jobs.

One ton of ruggedness, Cat power shift transmission stands up under the heaviest earthmoving duty. See it demonstrated on D8 and D9 Tractors.

MACHINES AND DEVELOPMENTS IN '59!

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SYNCHROTOUCH TRANSMISSION CONTROL

for DW20 and DW21 Tractors

An advanced new way to shift gears easier and faster. Operator simply dials desired gear for automatic, split-second, touch-and-go response!

This remarkable Caterpillar advance combines economical direct drive transmission with the easiest, fastest shifting possible. An optional arrangement for DW20 and DW21 Tractors, SynchroTouch Transmission Control permits effortless shifting of transmission gears by means of a gear selector placed near the operator's right hand.

To shift up or down, the operator simply moves a selector switch to the desired gear. In less than a second, it is engaged. The standard foot clutch is retained, but is used only when starting from a standstill.

Fully tested on the job, Caterpillar SynchroTouch Transmission Control gives you these important benefits:

1. Faster shifting—for faster cycles and more payloads per hour.
2. A big reduction in operator fatigue—for more daily production.
3. Economical direct drive transmission—uses standard DW20 and DW21 transmission and clutch components.
4. No special maintenance required.

See the DW20 and DW21 in action with this great new optional control!

Here they are – CATERPILLAR'S NEW

CAT No. 933 SERIES F TRAXCAVATOR

New power, new capacity, more features and new ruggedness increase output as much as 22%!

From every standpoint, the new No. 933 Series F is a bigger producer than the Series E model. You can count on it for more work cycles per hour, more yards production per day, easier operation and greater profits per job.

The Series F has many new features. Here are just a few. It has a new 1⅛ cu. yd. bucket, longer bucket reach and greater digging depth. Its new 52 HP Cat Engine is shorter, more compact with new engine balancers for smoother operation. It provides new operator comfort with convenient grouping of easy-operating controls and instruments, ample leg room and new comfortable seat. Its new power train, with 4 forward speeds (1.51 to 5.43 MPH) and new 3.67 MPH reverse boost production. And the time-proved, dependable oil clutch is standard.

Match the No. 933 against anything in its size. You'll be convinced: here's the most excavator-loader for your money!

MACHINES AND DEVELOPMENTS IN '59!

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The "ALL NEW" No. 619-No. 442 and the NEW SERIES F DW15-No. 428

Select the tractor-scraper most suitable for your normal working conditions—the two-wheel No. 619 or the four-wheel DW15!

The new No. 619-No. 442 shown here is the first two-wheel rig with advanced design and performance features for any job. Its Turbocharged Cat Engine provides 225 HP and high torque rise, ideal for lugging under load and fast acceleration. Its LOWBOWL Scraper handles 14 cu. yd. struck, 18 cu. yd. heaped. It has a 30.2 MPH operating speed, plus ground-hugging roadability never before found in a two-wheel tractor of comparable size. In every way, it is a versatile "all job" rig.

Design improvements assure greater productivity than ever in the well-known four-wheel DW15-No. 428. New strength has been added for increased service life in bevel gear and pinion, differential and front wheel spindles. Along with these and other advances, this new Series F unit retains features that made it top performer in its class. It provides 200 HP (max. output) and high torque rise. Its LOWBOWL Scraper handles 13 cu. yd. struck, 18 cu. yd. heaped. The DW15 is also a versatile unit. It can be unhitched from the No. 428 and used to haul other units, among them the Athey PR15 Rear Dump Trailer.

Coal Industry Must Overcome Its Lagging Progress

• Today all industry has to be healthy and prosperous to meet competition.

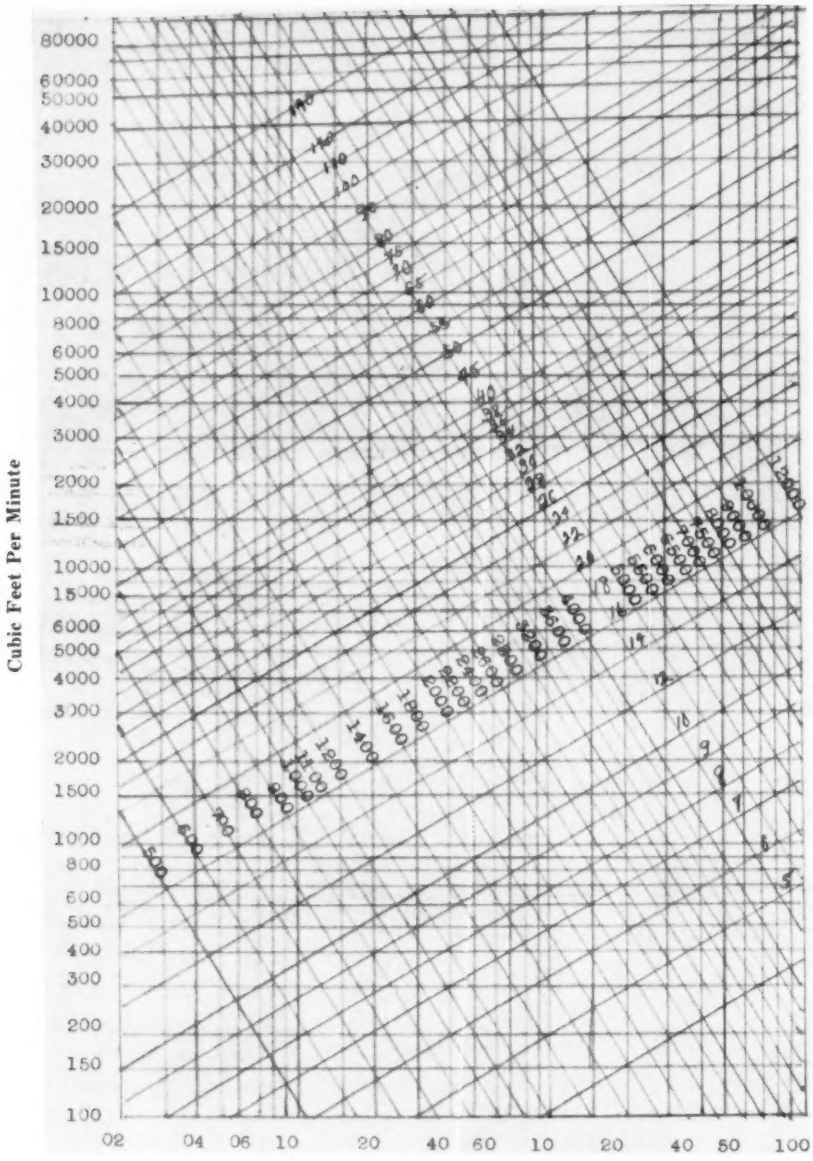
In the past, business learned, the hard way, that it cannot be indifferent to what its competition is doing and survive.

An essential to all business today is continuous improvement of its product, or the development of an entirely new product for the consumer. This involves a constant drive for technological betterment which boosts production, or reduces cost of operation, or increases wages to its employees, or reduces selling costs to its consumers. Carried out properly, this policy has a way of solving many of the newer social problems confronted by industry.

The coal mining industry must have, soon, a greater understanding of the contribution automation of operations will have to its lagging progress. The coal mining industry has got to realize that automation is vital to its survival and that automation is the best way to bring about its well-being as well as to advance its aspiration for a more intellectual and more cultural environment in order to encourage the higher calibre employees it must have.

The coal industry must have a good solid business accomplishment that is in concert with and not opposed to progress of the time. Sound counsel and intelligent and aggressive interpretation are required. All segments of the industry must make an effort to strengthen its economic standing.

A Chart For Speedy Calculation Of Air Flow In Ducts



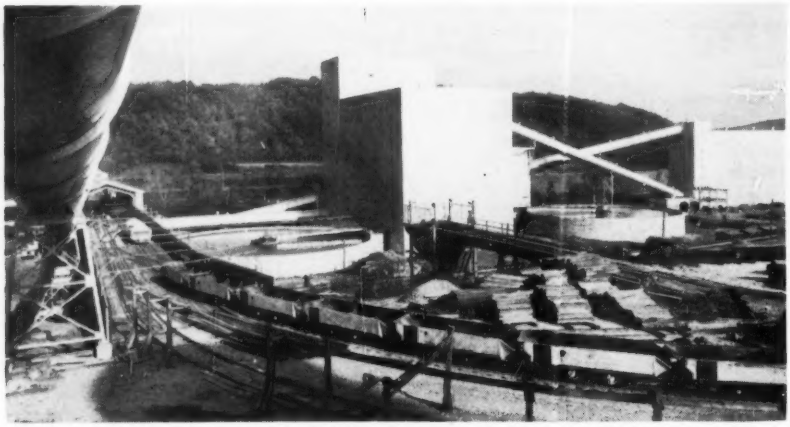
Friction Loss in Inches of Water per 100 Feet.
Flowing in Wrought Iron Pipe

Example: Using metal or rubberized canvas duct to circulate 10,000 cfm of air for a distance of 500 feet, and in a 24" stream. What is the pressure required?

The Method: Locate 10,000 on the cubic feet per minute scale and follow this line horizontally to the intersection of 24" diameter of pipe.

Next follow the line which passes through this intersection to the bottom of the chart and read .59" water guage friction per 100-ft. of tubing. It is assumed that kinks are not permitted, nor deep indentations.

Digging and loading coal at the rate of 250 tons per day is the performance figure of this Manitowoc Model 3600 Hi-Lift Shovel owned by the Big Valley Coal Co., Slippery Rock, Penna. The unit is working on the J. R. Rodgers Property about 2½ miles north of Clintonville, Penna.



U. S. STEEL'S NEW COAL WASHER began break-in operations. Located in Washington County, the modern coal cleaning plant will be capable of washing coal at the rate of 800-tons per hour. The clean coal will be shipped by barge to the Corporation's Clairton Works where it will be converted into coke for the blast furnaces.

● United States Steel's newest coal preparation plant located at the Corporation's Maple Creek Mine in Washington County began break-in operations the week of Dec. 9, R. C. Beerbower, Jr., general superintendent of the District for U. S. Steel, said that it is one of the most modern coal cleaning plants in the world. The new facility will be capable of washing coal at the rate of 800 tons per hour when operating at peak capacity.

During this break-in period, the necessary operating practices for the new unit will be obtained.

The cleaning plant will process coal from the new Maple Creek Mine and four other U. S. Steel District mines. The processed coal will be transported to the Corporation's Clairton Works for conversion into coke U. S. Steel's Pittsburgh District blast furnaces.

● Power shift transmissions, each of which features an exclusive new concept in the transmittal of tractor power, are now available on Caterpillar D8 and D9 Tractors, according to an announcement by Max M. Snyder, General Sales Manager of Beckwith Machinery Company, Pittsburgh, Pa.

The new transmissions provide instantaneous, one-lever control of gear shifting without interruption of power and momentum. They are built to withstand the demanding conditions of tractor service.

In addition, by a unique utilization of planetary gear versatility—introduced to the industry on these machines—tractor performance is provided which combines the best features of both direct drive and torque converter power trains. Heart of the new power-tailoring arrangement is a planetary gear set, driven integrally by the engine flywheel, which transmits ⅓ of the engine torque directly to the transmission input shaft, and the remaining engine torque through the torque converter.

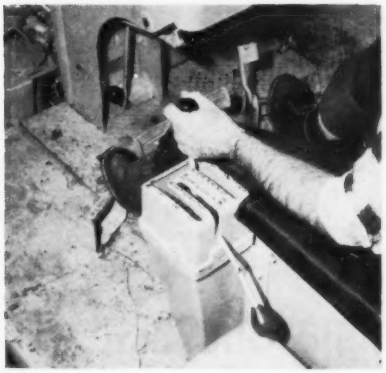
Horsepower of both machines has been increased to give an additional boost to productivity. Horsepower of the Cat D8 power shift Tractor is 235; rating of the D9 model is 335 HP.

Instant, Effortless Shifting

On the operator's deck, one range selection lever now takes the place of the flywheel clutch lever, gear selection lever and forward-reverse lever. In terms of operator efficiency, this means: reduced shifting time, effortless and simplified shifting. Only a fraction of a second is required to shift the power shift transmission, as against a shift time of up to several seconds for standard transmissions.

Shifting ease insures the matching of tractor speed and power to machine load. The machines can be shifted on the move under full load; then instantly reversed to a high return speed to begin another work cycle.

In releasing information on the split-path transmission of engine torque, the equipment distributor



The guide for the gear range selector lever on the new Caterpillar power shift transmission machines is horseshoe-shaped. One leg of the horseshoe contains low (1), intermediate (2), and high gear (3) in forward; the other leg contains the same ranges in reverse. Neutral is at the curve of the shoe. The rear lever is a manual safety, used to lock the gear selector lever in neutral.

official underscored the inherent advantages of this precedent-setting design. By directing a portion of engine torque straight to the transmission input shaft, it provides higher overall efficiency than a standard torque converter drive and retains the solid feel of direct drive tractors. This design feature also retains the impact force necessary in stumping and ripping operations.

The remainder of the engine power is directed through the torque converter, allowing the tractor to automatically adjust travel speed to load, as on normal torque converter drive machines. Additionally, engine stalling under heavy lug conditions is reduced. The interaction of the mechanical and torque converter drives also reduces the tendency of the machine to lunge when suddenly releasing a load, provides high efficiency over a broader range than standard torque converter tractors, and provides audible indication that the engine is being lugged when run close to stall conditions.

Test Data Reveals Versatility

As a prelude to this month's introduction, a fleet of 30 D8s and D9s was equipped with power shift transmissions and tested on contractor's job and at Caterpillar's proving grounds. During the machines' extensive development program — involving 50,000 machine test hours—the manufacturer compiled data revealing the new machines' operating characteristics.

In bulldozing applications, standard transmission tractors normally work in a single gear range. However, the new power shift transmission allows the operator to instantly shift down under an increasing load; then without loss of speed or power, shift up to optimum load-speed in drifting to the fill. The time and speed loss involved in shifting standard transmission machines is eliminated, as is the tendency for operators to stay in one gear range rather than go through the normal shifting procedure in mid-pass.

Here is Caterpillar's new power shift transmission at work. Under the varying load demands of bulldozing, the operator of this Caterpillar D9 power shift Tractor shifts gear ranges and reverses direction in fractions of a second, simply by moving the lever under his left hand. The machine's power shift transmission combines the best features of direct drive and torque converter drive tractors.

In pushloading applications, the power shift allows the machine to approach the scraper at high speed, down-shift to intermediate range to provide fast loading speed for the initial stages of loading, drop to low range as the load builds, then shift up through intermediate and high range to assist the scraper in leaving the cut.

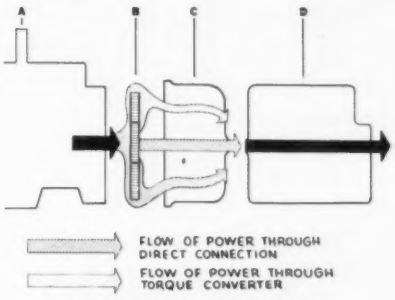
Power Shift Transmission and Control

The D8 and D9 power shift Tractors have a three-speed forward, three-speed reverse, planetary transmission. It consists of five in-line gear trains, each with a separate clutch. Two of the planetary trains are directional; three constitute the low, intermediate and high gear ranges. Control of the clutches is by direct-acting hydraulic control system, designed and built by Caterpillar. Design of the hydraulic system is such that the speed range clutches are engaged first when shifting, followed by engagement of the forward or reverse clutches. This feature assures smooth transitions in speed when changing speed ranges. The transmission and torque converter are connected by a universal joint, providing unit construction which permits removal of either the transmission or the torque converter without disturbing other machine components.

A safety lever is installed on the selector lever pedestal, which locks the selector level in place when in the neutral position. The control system also contains a hydraulic safety valve, which automatically shifts the transmission into neutral when the engine is stopped.

Lubrication

Lubrication of the power shift transmission on both model machines is afforded by a separate vane-type pump located on the flywheel housing. It supplies oil through an individual filter to the transmission power clutch control unit, where it serves as hydraulic fluid for the transmission clutches. Lubricant is then channeled to the transmission bearings, gears, and clutch plates. On the D9, the transmission oil sump is a separate compartment, whereas on the D8 power shift model, it is common with the bevel gear and steering clutch compartments.



Schematic Operation of the Caterpillar Power Shift Transmission

Torque is delivered by the engine (A) to a planetary gear set (B), where approximately ⅓ of it is directed to the input shaft of the power shift transmission (D). The remaining ⅔'s of the torque is directed into the converter (C), then to the transmission input shaft.

Lima 1250 . . . Samm Coal Company, Hawthorne.

Lima 44 . . . Shawville Coal Company, Inc., Shawville.

Top production at lowest cost... Lima Shovels, Draglines from *Highway*

Lima 1250 River Hill Coal Co. Kylertown.

Lima 2400 . . . Zacherl Coal Company, Inc., Lucinda.

Highway

HIGHWAY EQUIPMENT COMPANY

6465 Hamilton Ave. • Pittsburgh 6, Pa.
40 Hoover Ave. • Du Bois, Pa.
5245 Peach St. • Erie, Pa.

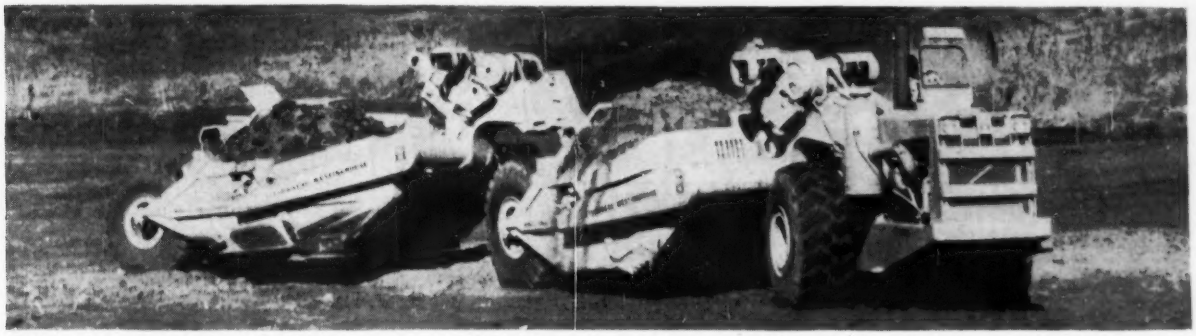
Allis-Chalmers • Master • Lima • Thor • Heltzel • Gar Wood
Jaeger • Buffalo-Springfield • Ottawa
Rogers Trailers • M-R-S • Lippmann Crushers

Lima 2400 . . . Shawville Coal Company, Inc., Shawville.

Lima 2400 . . . Harold A. Siegel Coal Co., Fryburg.

A-1027A

Lima 1250 . . . P & N Coal Co., Punxsutawney



NEW L-W TANDEM SCRAPER. LeTourneau-Westinghouse announces availability of a line of tandem earthmoving scrapers ranging in capacity from 18 to 56 cubic yards. The second scraper can be quickly removed to convert to conventional single unit operation. Pictured is the Model C Version — capacity 36-yards.

● With the announcement of tandem scrapers — LeTourneau-Westinghouse Company has virtually doubled the number of machines it offers in its earthmoving equipment line. The tandems are currently available behind all three sizes of the company's two-wheel Tournapull Prime Movers, as well as with the recently introduced four-wheel Speedpull. Total capacities with the tandems range from 18-cu. yds. in the D size to 56-cu. yds. in the model B.

The L-W tandem system is extremely flexible. Coupling or uncoupling the second scraper can easily be accomplished in 30 minutes or less. One hitch pin forms the mechanical connection, while quick connect plug-ins provide the hook up for electric cables and air hoses.

One of the most important advantages in tandemizing is that the capacity doubling process does not call for a bigger more powerful pusher. Because the scrapers are loaded one at a time, loading resistance is about the same as it would be if there were only one scraper behind the prime mover. In loading time, the process of loading tandems is actually faster than if each scraper had its own power unit, because the time taken for the pusher to position for the second load has been eliminated.

The move to tandems offers the equipment owner a broad selection of prime mover and scraper combination to meet varying requirements. Presently the purchaser can choose from 17 available teamings of horsepower and capacity.

The idea of doubling-up scrapers in tandem for greater capacity is not new. The L-W approach makes the idea practical. Principal problems experienced with tandems in the past were awkwardness and lack of maneuverability due to extreme length, plus the complication of running long reeves of cable from the rear scraper to a power control unit on the prime mover. The L-W system eliminates both of these drawbacks.

Electric controls for the rear scraper, just like the ones on the front, transmit the power for tailgate, apron and bowl lift through electric cable eliminating the long run of wire rope. The maneuverability problem was solved by dispensing with the front axle and wheels of the second scraper and letting it ride "piggyback" on the rear of the front scraper. This shortened the tandem's overall length and permits the second scraper to turn a full 90-degrees in relation to the front scraper.

The result is that the L-W tandem very closely approaches, and in many instances surpasses, the maneuverability of conventional single scraper self-propelled units of comparable carrying capacity. As illustration, model D Tournapull with tandem scrapers totalling 18-yards capacity can make a 180-degree turn in less than the 32'7" space required by the C with single 18-yard scraper.

The introduction of tandems opens "capacity-doubling" possibilities to the vast majority of owners of Tournapull scraper combinations already in the field. Almost all such electric control rigs, built since 1947 can easily be tandemized. According to the engineers, the job can be done in the field at modest cost. Kits to do the job will be available before the start of the 1960 dirt season.

● Allis-Chalmers Mfg. Co. has introduced a new all-hydraulic TS-360 motor scraper with a 30 cu. yd. heaped capacity and a 22.3 cu. yd. struck capacity. This 63,150-lb. unit is powered by the Allis-Chalmers turbocharged 21000 engine, developing 340 hp at 2,000 rpm.

Double-acting hydraulic bowl lift jacks assure tremendous force at the cutting edge for penetration into tough-loading materials. Hydraulic power is furnished by a tandem pump, gear-driven from rear of engine crankshaft to provide instant controlled response for positive steering and scraper operations.

The TS-360's double-acting steering jacks and multiplier links provide the unit with exceptional maneuverability. A 90 degree turn either way can be accomplished with only a one-sixth turn of the steering wheel. Full 180 degree turns can be made within a width of 35 feet 8 inches.

The Allis-Chalmers big turbocharged engine combines fast acceleration and high torque output for fast getaway in the cut, sustained haul speeds and full power spreading on the fill. The heavy-duty drive train efficiently transmits high engine output to the drive wheels.

A 5-speed, heavy-duty, pressure

lubricated, constant mesh, spur gear transmission, providing speeds up to 26.3 mph, has an air actuated inertia brake on the counter-shaft to assist in up-shifting. The brake eliminates double clutching, allowing the operator to shift from lower to higher gears swiftly and quietly, with a minimum of effort. Built for long life and operating efficiency, the transmission has a pump and filter to keep gears and bearings completely lubricated with clean oil.

The new TS-360 features the KON-TORK differential, which automatically controlls the amount of torque delivered to each drive wheel in relation to traction requirements. It consists of only five moving parts for simple, dependable operation and provides maximum tractive effort in all types of material and conditions.

The TS-360 has a low, wide bowl with a slightly curved bowl bottom. This design accelerates a "live" material movement initially created by its heavier concentration over the center of the cutting edge resulting in capacity loads faster.

Twin, telescoping, hydraulic cylinders provide power for the positive forced ejection. Rams push from the center of the ejector for more effective use of this power. As the ejector moves forward, the apron raises to a 10-ft. opening, assuring ejection of all types of material.

The new Allis-Chalmers all-hydraulic TS-360 motor scraper with a 30 cu. yd. heaped capacity and a 22.3 cu. yd. struck capacity. This 63,150-lb. unit is powered by the Allis-Chalmers turbo-charged 21000 engine, developing 340 hp at 2,000 rpm.

The new Allis-Chalmers TS-360 is mounted on four 29.5 x 35 tires, and has proper weight distribution necessary for maximum tractive effort, flotation, and long tire life. Two-thirds of the total empty weight is carried on the drive wheels and one-third on the scraper wheels. When loaded, the total gross weight is equally distributed over all four wheels.

Operator safety and comfort features are engineered and built

(Continued on Page 24)

YOU CAN'T BUY A REPUTATION

Reputations are earned, not bought. And, in these days when the dependability of the people you do business with is so important, it pays you to find out something about their reputations. We'd like you to ask anybody in the Machinery business about J. T. FISH — even our competitors!

You can depend on us to BUY or to SELL any quantity of Mining Equipment from one item to a complete mine and at fair prices always!

WE BUY — SELL — TRADE

JOY EQUIPMENT—REBUILT

1—Joy 14BU Loader, low pedestal, 7AE.
6—Joy 14BU Loaders, medium pedestal, 7RBE.
4—Joy 14-BU 3PE Loaders.
6—12BU10E Joy Loaders complete with Piggy Backs.
2—Joy 12BU Loaders, 9E, latest type.
1—Joy 20BU Loader, latest type.
2—Joy 11BU Loaders, latest type.
1—Joy 8BU Loader, 34" overall height.
2—Joy 8BU Loaders, 220 volt AC.
1—Joy curved Bar Head, complete.
6—Reliance 24-J Motors, 7½ H.P.
10—Reliance 38-J Motors, 10 H.P.
20—9-J Motors, 4 H.P.
2—Goodman 660 Loaders on Crawlers 440 volt DC, like new.
1—Goodman 660 Loader on Crawlers, excellent 250 V. DC.
1—Goodman 665 Loader on Crawlers, latest type 250 V. DC.
1—Goodman 865 Loader 26" hi. Rebuilt. 250 V. DC.
4—Joy 6SC Shuttle Cars, rebuilt.
11—Joy 6SC Schuttle Cars, Latest type.
1—Joy 5SC Shuttle Car, Excellent
2—Joy 32E9 Shuttle Cars.
2—Joy 32E10 Shuttle Cars, rebuilt.
2—Joy 32E15 Shuttle Cars, rebuilt.
4—Joy 32E16 Shuttle Cars, rebuilt.
2—Joy 42E16 Shuttle Cars, rebuilt.
1—Joy CD-22 Drill, like new.
6—Joy T-2-5 low pan Crawler Trucks.
1—Joy T-2-6 low pan Crawler Truck with reel.
2—Joy T-1 Standard Crawler Trucks, 220 AC.
1—Joy T-1 Standard Crawler Truck, 250 DC.
2—Goodman low pan Crawler Trucks, like new latest type.
4—Joy 11-B Cutting Machines, like new, 35 and 50 H.P.
1—Joy 7-B Cutting Machine, like new, 250 volt DC.
2—Goodman 212 Cutting Machines, 19" high.
4—Goodman 312 Cutting Machines, 17" high.
3—Goodman 412 Cutting Machines, 19" high.
1—Goodman Machine on Crawler, 31" high. All hydraulic.
6—Goodman 512 Machines with Bugdusters.
6—Goodman 612 cutting machines, 250 and 500 volt.
1—Lee Norse low vein Machine Carrier on rubber.
1—Jeffrey 70 URB rubber tired Cutter. Universal head, perfect condition.
1—Joy 11RU Rubber Tired Cutter with bug-dusters, Universal heads, like new. 250 V DC.
2—Joy 10RU rubber tired cutters Universal head, 220/440 volt AC, perfect.
6—7AU's on track, Universal head.
2—Jeffrey 29UC Cutting Machines, Universal head, cuts anywhere in seam, 38" high, on Crawlers, 250 volt DC.
1—Jeffrey 29LC on Crawlers, rebuilt.

LOCOMOTIVES

1—Goodman 6 ton, 91-A, 27" high, armor plate frame
2—Jeffrey 13 ton, type MH-110, 36", 42" and 44" Ga.
2—Jeffrey, 10 ton, type MH-110, 42" and 44" Ga.
2—Jeffrey 10 ton type MH-78, 42" & 44" Ga.
2—Goodman 8-30 and 10-30 Locomotives, 26" above rail.
1—Jeffrey MH-124, 6 ton, 24" overall height.
12—Jeffrey, 6 ton, type MH-88, 42", 44" and 48" Ga.
4—Jeffrey, 8 ton, type MH-100, 21½" armor plate frames.
1—Jeffrey, 6 ton, type 2186, 22" above rail.
3—Jeffrey, 4 ton, type MH-96, 42", 44" and 48" Ga.
1—G. E., 4 ton, type 825 Locomotive, 22" high.
10—G.E., 6 ton, types 801, 803, 821 Locomotives, 42", 44" and 48" Ga.
1—G.E. 8 ton, type 822 Locomotive, 44" Ga.
3—G.E. 10 ton, type 809 Locomotives, 42", 44" 48" Ga.
2—Goodman, type 33, 6 ton, 44" and 48" Ga.
3—Westinghouse, type 902, 4 ton, 42" and 48" Ga.
2—Atlas Battery Locomotives, 36" Ga.
1—Atlas Trolley Locomotive, 4 ton, 24" high.
2—Westinghouse, type 904, 6 ton, 44" and 48" Ga.
2—Westinghouse, type 906, 44" and 48" Ga.
2—Westinghouse, type 907, 10 ton, 44" and 48" Ga.
8—Jeffrey MH-78 Locomotive Units, cheap.
4—Jeffrey MH-88 Locomotive Units, real bargains.
6—Jeffrey MH-100 Locomotive Units, reasonable.
3—Plymouth Diesel Locomotives, 8 and 10 tons, 42" and 44" Ga.
Locomotive Trucks and Spare Armatures for all the above.

TIPPLE EQUIPMENT

1—Complete Five Track Tipple with Washers and Air Tables.
5—Complete Tipples, 3 to 5 track, steel and wood.
3—Cleaning Plants, 1 Ea. McNally, Roberts and Schaefer, Jeffrey, Washers and Airflo Tables.
4—complete Aerial Trams for coal or refuse.
3—complete Rope and Button Lines.
2—Monitor Lines complete with Drums, excellent.
3—Allis-Chalmers 5' x 12' Low-Head Vibrators.
2—Allis-Chalmers 5' x 12' Rippflo Vibrators.
1—Allis-Chalmers 4' x 12' Low-Head Vibrator
1—Robins Gyrex Vibrator 4x10.
10—Belt and Apron type Loading Booms.
6—Shaker Screens
1—Robins Car Shakeout.
20—Crushers, various sizes. Gundlach, Jeffrey, McClanahan, McNal.
4—Mine Scales, 10 & 20 tons.
5—Truck Scales, 25 to 40 tons, late type.
Feeders, Belt and Drag Conveyors, Car Retarders, etc.

CUTTING MACHINES

2—Joy 10RU rubber tired cutters, Universal head, 220/440 volt A.C. Perfect.
1—Joy 11RU, rubber tired Cutter, 250 V. DC.
1—Jeffrey 70 URB Cutter, rubber tired, Universal Head, low vein.
2—Jeffrey 29UC Universal Machines on Crawlers.
1—Goodman on Crawlers, 31" overall height.
3—Baby Goodman 212's, rebuilt, 250 Volt DC.
2—Goodman 212 Cutting Machines, 19" high.
4—Goodman 312 Cutting Machines, 17" high.
3—Goodman 412 Cutting Machines, 19" high.
6—Goodman 512's with Bugdusters, like new.
4—Goodman 512's, rebuilt, or as removed from service.
3—Goodman 112's 220/440 volt AC.
1—Joy 7-B Cutting Machine, 250 volt DC.
4—Joy 11B Cutting Machines, rebuilt. 35 and 50 H. P.
6—7 AU's, on track, Universal head.
10—Goodman 12AA's and 112AA's, 250 volt DC.
2—Goodman 324 Slabbers.
2—Goodman 724 Slabbers.
2—Goodman, 824 Slabbers.
6—Jeffrey 35L's, like new, 17" high.
2—Jeffrey 35L's on low vein trucks.
15—Jeffrey 35B's and 35BB's.
2—Jeffrey 29B's on track.
2—Jeffrey 29C's, track mounted.
2—Jeffrey 29L's on Crawlers. Excellent.
3—Sullivan CE7, 220 volt AC.

CONVEYORS

2—Robbins 36" tandem drives with or without structure.
2—Joy 30" Underground Belt Conveyors, 500' to 2000' each. Excellent.
1—Goodman 97-C, 30" Conveyor, 1500' long.
2—Goodman 97-C, 26" Conveyors, 1,000' long.
3—Robbins 30" Belt Conveyors, 200' to 2000'.
4—Jeffrey 52-B, 30" Drive and Tail Assembly, complete.
2—Joy MTB 30" Drive and Tail Assembly, complete.
3—Goodman 97 HC 30" Drive and Tail Assemblies, complete.
4,000' Conveyor Belt, 36".
8,000' Conveyor Belt, 30".
4,000' Conveyor Belt, 26".
8—Jeffrey 61AM 12" Chain Conveyors, 300'.
2—61EW Elevating Conveyors.
2—61WH 15" Room Conveyors, 300'.
2—Joy 15" Room Conveyors, 300'.
2—Joy 20" Conveyors, 300'.
4—Joy Ladel UN-17 Shakers.
10—Goodman G-12½ and G-15 Shakers.
3,000' Goodman 18" Flat Belt Conveyors, tandem drive, any length, perfect.
2,500' Goodman 20" Flat Belt Conveyors, tandem drive, any length, perfect.

CONVERTERS AND DIESEL PLANTS

1—300KW Portable Rectifier, 3 card unit. Excellent.
2—500KW G. E. Stationary Rectifiers
4—1,000KW Stationary Rectifiers.
2—100KW, G.E. TCC-6's, 275 volt, Rotary Converters
1—150KW, G. E. HCC-6, 275 v., Rotary Conv.
1—150KW, 6 phase, Allis Chalmers Rotary Converter, 275 V. DC.
2—200 KW, G. E. HCC-6's Rotary Converters, 275 V. DC, Newly rewound.
3—300KW, G. E. HCC-6's Rotary Converters, 275 V. DC, like new
2—300KW Westinghouse, 6 phase, Rotary Converters, 275 volt DC.
2—500KW Westinghouse Rotary Converters, 275 volt DC.
2—200KW Westinghouse Rotary Converters, 275 V. DC. Newly rewound. (all the above with 6900/13000 and/or 2300/4000 primary transformers)
2—100 KW MG Sets, 275 volt DC.
2—150KW MG Sets, General Electric and Westinghouse, 275 V. DC.
1—200KW MG Set, Westinghouse, rebuilt, 275 V. DC.
1—200KW MG Set, General Electric, perfect. 275 volt DC.
2—300KW G. E. MG Sets, like new.
1—300KW Westinghouse, 600 volt, MG Set, rebuilt.
2—300KW Westinghouse, 600 volt, 6 phase, Rotary Converters.
2—500KW Westinghouse, 600 volt, DC, 6 phase, Rotary Converters.
2—500KW HCC-6's Rotary Converters, 6 phase, 600 volt DC.
1—GMC 471 Diesel with 60 KW, 250 volt DC Generator.
1—GMC-671 Diesel with 75 KW, 250 volt DC Generator.
1—Cummins 125 KW, Diesel with 250 volt DC Generator.
1—Allis Chalmers Natural Gas Engine with 100 KW Generator, 275 volt DC.
Boilers, like new, 500 H.P.

LOADING MACHINES

6—Joy 12BU with Piggy-Back Conveyors
16—Joy Loaders, 14BU, 12BU, 8BU, 11BU, 20BU.
2—Goodman 865 Loaders, 26" on Crawlers.
1—Goodman 665 Loader on Crawlers.
2—Goodman 660 Loaders, 440 volt AC perfect.
1—Goodman 660 Loader, on Crawlers.
1—Goodman 460 rebuilt, on track.
2—Jeffrey 61 CLR's, on rubber, 26".
3—Jeffrey L-500 Loaders.
2—Myers Whaley, No. 3 Automatic Loaders
2—Clarkson Loaders, 26" above rail.

MISCELLANEOUS

1—Complete Five Track Tipple with Washers and Air-Tables.
5—Complete Tipples, 3 to 5 Track. Wood and Steel.
Steel Trestles for drop bottom cars.
All Steel Armco Buildings.
20—Jeffrey Molveyors on rubber tires.
1—¾ Yard Shovel and Back-Hoe.
1—¾ Yard Crawler Crane.
Battery Supply Tractors, rubber tired.
1—Cantrell Air Compressor on rubber tires.
10—Air Compressors, 1 H.P. to 40 H.P.
2—Joy self propelled rubber tired compressors, 240 cu. ft.
2—Acme self propelled rubber tired compressors, 130 cu. ft.
40 Mine Pumps, all types.
1—Differential 40 Passenger Man Trip Car.
6—MSA Rock Dusters.
2—Phillips, Carriers, 44" and 48" Ga.
1—Barber Greene self propelled Bucket Elevator.
Pipe, Plastic, Steel, Transit, all sizes 1" to 6".
300 Mine Cars, drop bottom, 42" Ga.
30 Mine Cars, drop bottom, 44" Ga.
100 Mine Cars, 18" high, end dump, 44" Ga.
300 Mine Cars, end dump and drop bottom, 20" high, 48" Ga.
1—10 ton Mine Car Scale with Recorder.
15—Brown Fayro HKL and HG Car Spotters.
1—Brown Fayro Hydraulic Car Spotter.
1—12 ton Differential Slate Larry.
Incline Hoists, 25 to 50 H.P.
1—Jeffrey 5' Aerodyne Fan, like new.
1—Jeffrey 6' Aerodyne Fan.
1—Jeffrey 8' Aerodyne Fan.
2—Storage Tanks, 4,000 Gallons.
2—Storage Tanks, 10,000 Gallons.
10,000 Five Gallon G. L. Cans, screw lids.
2,500 tons Relaying Rail, 25 lb., 30lb., 40lb., 50lb., 60lb., 70lb.
30—tons Copper—4/0 and 9 Section Trolley 1/0, 2/0, 4/0 Stranded.
Thousands of feet of rubber covered three conductor cable. All sizes.
300 Transformers from 1 to 300 KVA, 110 to 13,000 primary volts.
400 Electric Motors, 3 to 250 H. P.
Huge stock of Mine Supplies.
600 MSA Mine Lamps. Chargers, etc.
4—Mine Scales, 10 & 20 ton.
5—Truck Scales, 25 to 40 ton, late type.
Tandem Dump Trucks.
Thousands of other items.

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● The Fairfield Engineering Company of Marion, Ohio, announces a new high capacity conveyor for use in coal mines and to handle other non-abrasive materials.

It is designed primarily to work with auger drills in the mining of coal. Its high capacity, up to 210 TPH, will handle the output of the largest augers in use today. It can be attached to the auger so that it moves as the auger is moved to the next location. The conveyor is rubber mounted and has discharge heights ranging from 10 to 17 feet. Flight speed is 120 ft. per min.

Optional features include hydraulic steering, hoisting and chute swing. A choice of electric motor, gasoline or diesel engine is available at Fairfield distributors or by writing The Fairfield Engineering Co., Marion, Ohio.

● Catalog 953 — Comprehensive 32-page book covers electric and mechanical vibrating type coolers and dryers of both the direct and indirect type. Includes sections on Basic Drying Principles and the TMV Variable Amplitude Unit. Pages are also devoted to auxiliary equipment in the vibrating line such as feeders, conveyors, magnetic separators, packers, controls and the Waytrol constant weight feeder. A Pilot Unit Rental System is outlined. This system permits firms to simulate actual production conditions in their own plant. Abundant use of drawings, photographs, specifications and material weight charts are included. The Jeffrey Mfg. Co., Columbus 16, O.

ADVERTISER'S INDEX

DECEMBER, 1959

(Continued from Page 22)

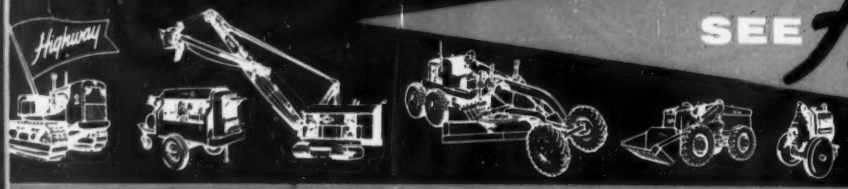
into the new TS-360. Large capacity synchronized air brakes are foot-pedal controlled and actuate tractor and scraper brakes simultaneously. The automatic operation of safety brake valves on both the tractor and scraper assure that braking power is instantly available should an emergency occur.

Adding to operator comfort is an adjustable foam rubber bucket seat positioned toward the center of the tractor to provide a more comfortable ride and a clear all-around view. Two conveniently located levers control the complete actuation of the scraper. One lever controls the apron and ejector movements; the other raises and lowers the scraper bowl. A large rear-view mirror, mounted above the windshield, lets the operator observe with only a glance the pusher and bowl-loading operation.

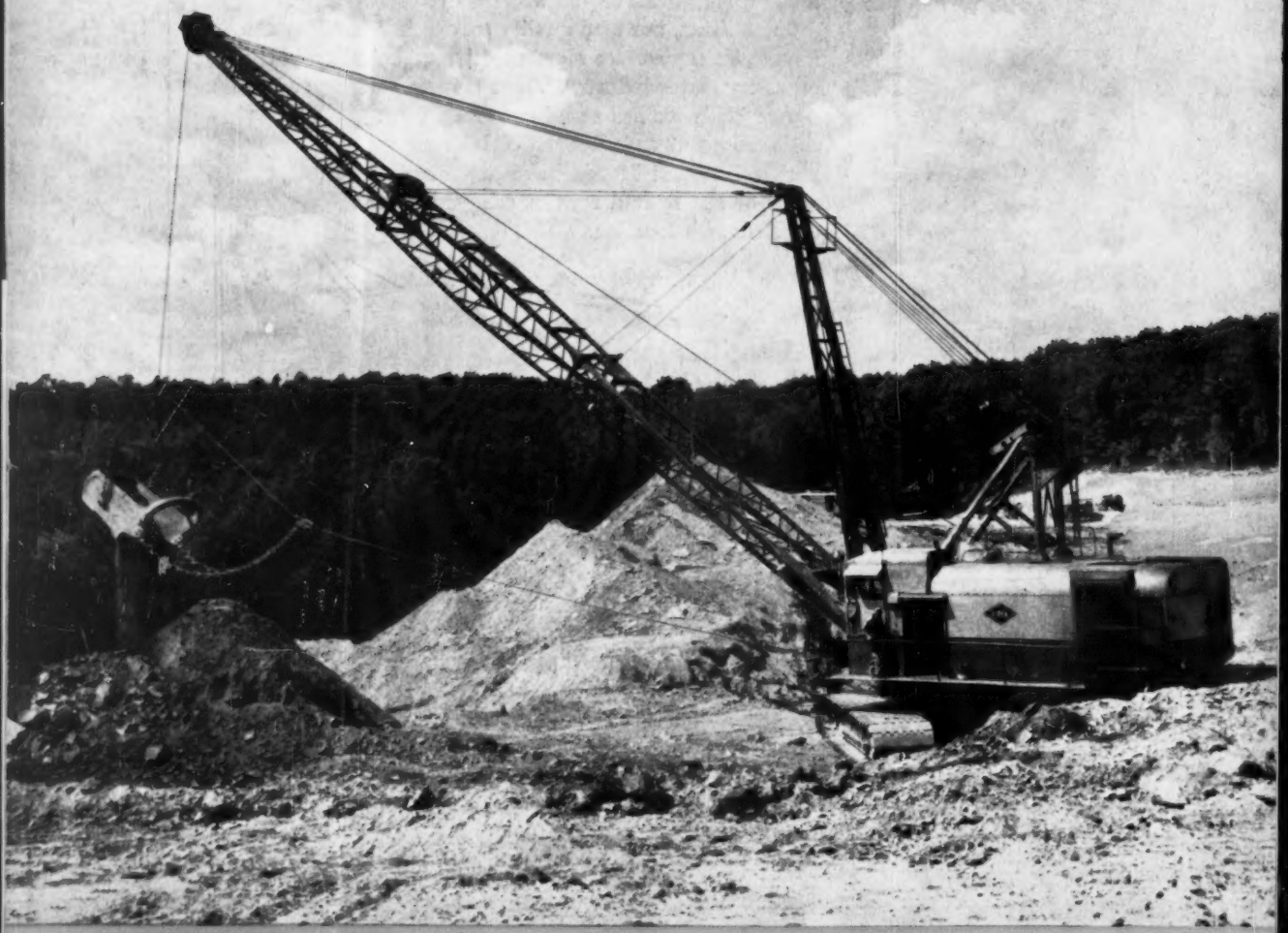
Unit construction makes all components easily accesible for quick servicing.

For the best in all types of mining equipment...

SEE *Highway* FIRST!



rugged equipment for tough jobs...



Lima 2400 strips overburden for Iseman Bros., New Bethlehem.

AA-9714

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